

## Claims

1. A high speed optical module comprising an upper plate having an aperture, and a lower plate, said lower plate having at least one active high speed optical component disposed thereon at a predetermined height above an upper surface of said lower plate, said module further comprising a ferrule disposed within said aperture, said ferrule extending through said aperture a predetermined distance, so as to facilitate passive alignment of a fibre disposed in said ferule and said at least one active optical component.
2. A module as claimed in Claim 1, wherein said upper and/or lower plates are ceramic.
3. A module as claimed in Claim 1, wherein said at least one active optical component is flip chip mounted on said upper surface of said lower plate.
4. A module as claimed in Claim 1, wherein said at least one active optical component is a detector.
5. A module as claimed in Claim 4, wherein said detector is a PIN detector.
6. A module as claimed in Claim 4, wherein said detector is an avalanche detector.
7. A module as claimed in Claim 1, wherein said module is an optical receiver.
8. A module as claimed in Claim 1, wherein said at least one active optical component is a light source.
9. A module as claimed in Claim 8, wherein said light source is a laser.
10. A module as claimed in Claim 9, wherein said laser is a vertical cavity surface emitting laser.

11. A module as claimed in Claim 1, wherein said module is an optical transmitter.
12. A module as claimed in Claim 1, wherein said upper and lower plates are hermetically sealed.
13. A module as claimed in Claim 1, wherein said module further comprises an electrical connector disposed on said lower plate.
14. A module as claimed in Claim 13, wherein said electrical connector is a flex connector.
15. A module as claimed in Claim 13, wherein said electrical connector is a series of electrical lead connectors.
16. A method of passively aligning a high-speed optical module, said method comprising the steps of:
  - disposing a ferrule within an aperture of an upper plate at a predetermined distance from said upper plate,
  - disposing at least one active high speed optical component on a lower plate at a predetermined height above an upper surface of said lower plate, wherein said predetermined distance and said predetermined height are such that efficient optical coupling in the axial direction is achieved between a fibre disposed within said ferrule and said at least one active high speed optical component,
  - positioning said upper plate with respect to said lower plate such that efficient optical coupling in the planar direction is achieved between said fibre disposed within said ferrule and said at least one active high speed optical component, and
  - sealing said upper plate to said lower plate.